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PRELIMINARY ENVIRONMENTAL REVIEW

STATE DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
MONTANA
BIG HORN COUNTY

**Right-of-Way Easement Request
by the Department of Fish and Game
for Department Lands in
Big Horn County, Montana**

AUGUST 1977

**MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
WATER RESOURCES DIVISION**



Malware State Office
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PRELIMINARY ENVIRONMENTAL REVIEW

RIGHT-OF-WAY EASEMENT REQUEST
BY THE DEPARTMENT OF FISH AND GAME
FOR DEPARTMENT LANDS IN
BIG HORN COUNTY, MONTANA

Prepared in compliance with the
Montana Environmental Policy Act

by

Montana Department
of
Natural Resources and Conservation

August 1977

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CONTENTS

Introduction	1
Description of Proposed Action	2
Environmental Impact Assessment of Proposed Action	5
Hydrology	5
Water Quality	10
Floodplain	12
Air Quality	12
Fisheries	13
Wildlife	14
Social/Economic	16
Aesthetics	16
Hunting and Recreation	16
Archeological and Historical Sites	16
Conclusions	17
Recommendations	19
References	21
Appendix	23

INTRODUCTION

In September 1976, the Department of Fish and Game asked the Department of Natural Resources and Conservation (DNRC) to draft an easement for the use of an existing marsh located at the upper end of the Tongue River Reservoir. The proposed uses include the building of a dike upon an existing old railroad bed, an inlet and outlet for water and access to the area by vehicular traffic for the purposes of construction, operation, and maintenance.

The proposed project involves about 43 acres (17.40 hectares) which is totally on DNRC's land. The water surface area of the proposed marsh is approximately 25 acres (10.12 hectares).

The DNRC determined that a Preliminary Environmental Review (PER) should be made of the proposed action under the Montana Environmental Policy Act (MEPA). Extensive environmental studies have been conducted in the area, providing DNRC with data with which to determine and evaluate the impacts of the easement request.

DESCRIPTION OF PROPOSED ACTION

PROJECT PURPOSE

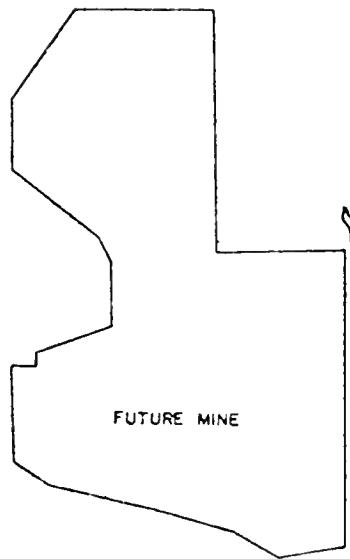
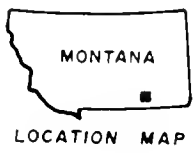
The Tongue River Reservoir is a fluctuating, warm-water impoundment of 3,497 acres (1,415 hectares) located in southeastern Montana about 30 miles (48 kilometers) north of Sheridan, Wyoming. Decker Coal Company is presently operating a large surface coal mine adjacent to and slightly upstream from the reservoir proper, on the west bank. A continuous discharge ultimately enters the Tongue River from a settling pond on mine property. Surface runoff and groundwater collected from various areas of the mine pit is pumped through a series of pipes into the settling pond. Within the next 2-3 years, two additional surface mines are planned; a northern extension of the present mine and a new mine on the east bank of the reservoir.

Since June 1975, a detailed and comprehensive limnology study has been underway at the reservoir. Sampling sites have included the effluent from the mine settling pond. Although slightly higher than surface water in total dissolved solids, the mine effluent appears to be of sufficient quality to support fish. In 1976, northern pike eggs were successfully fertilized and hatched in mine effluent water. The mine effluent provides no major beneficial use to fish and wildlife at the present time, although pheasants and Hungarian partridges have been observed on the banks of the settling pond. The present effluent is and the future effluent from the northern extension will be located near a combination seasonal marsh and river mud flat area adjacent to the Tongue River (Figures 1 and 2). Modification of this area, as outlined in this proposal, offers considerable potential to enhance fish and waterfowl values. No natural reproduction of northern pike is known to occur in the reservoir, and population levels are currently maintained by annual stocking. Northern pike have been stocked since 1969 and exhibit excellent growth in the reservoir. Pike are highly prized by fishermen utilizing the fishery. Resident Canada geese and various species of ducks also occur in the area.

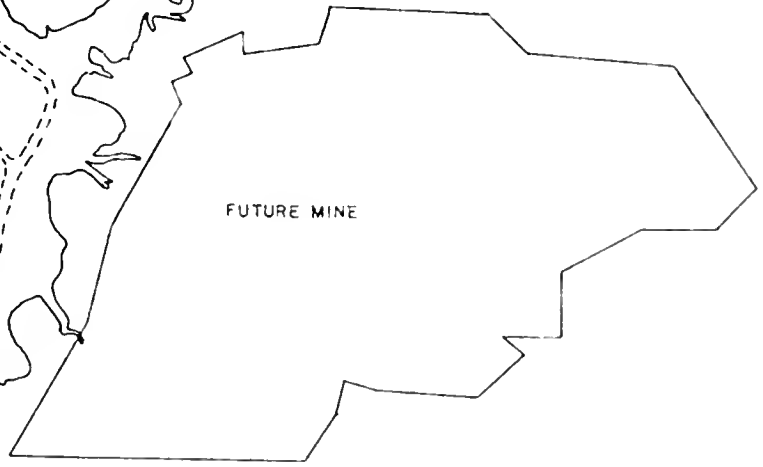
This project is designed to demonstrate that mining operations can make a measurable contribution to fish and wildlife populations in adjacent watersheds. The Decker operation typifies surface coal mining in the Northern Great Plains, and the project's results should be widely applicable to similar mines, operational or planned, in Wyoming, North and South Dakota, and Montana. With proper environmental planning and under local constraints of topography and location of adjacent watersheds, mine waste water from strategically placed settling ponds could be used to create large waterfowl production areas, spawning and nursery areas for selected sport or bait fishes and rearing marshes to increase survival of fish species which are normally planted as fry. Such rearing marshes could provide a source of fish for planting in areas not in close proximity to ongoing operations. The marsh proposed for this study can be operated continuously throughout the 20-30 year mining period by the Cooperative Fishery Research Unit, Montana Department of Fish and Game (DFG); and Decker Coal Company personnel. The marsh can be supplied with water from the Tongue River when mining is completed.



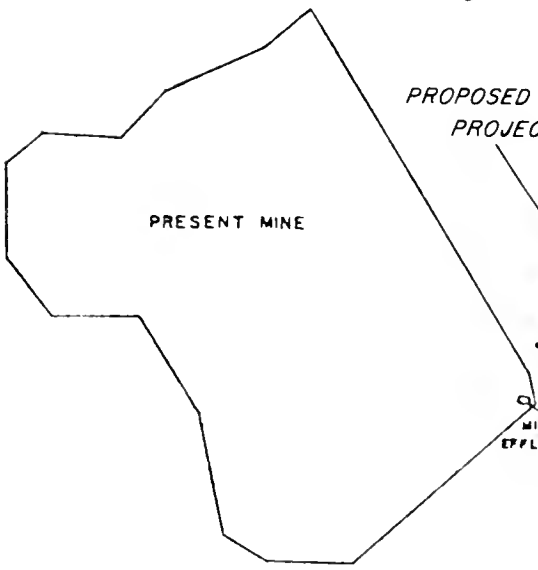
PROPOSED PROJECT LOCATION
TONGUE RIVER
RESERVOIR



FUTURE MINE



FUTURE MINE



PRESENT MINE

PROPOSED PROJECT



SUMMER CHANNEL

TRRM

MINE EFFLUENT

INFLOW



SCALE
KILOMETERS

Fig. 1

PROPOSED PROJECT LOCATION AND SURROUNDING TOPOGRAPHY
(Base Map - USGS Decker Quadrangle)
T9S R40E Scale 1:24000

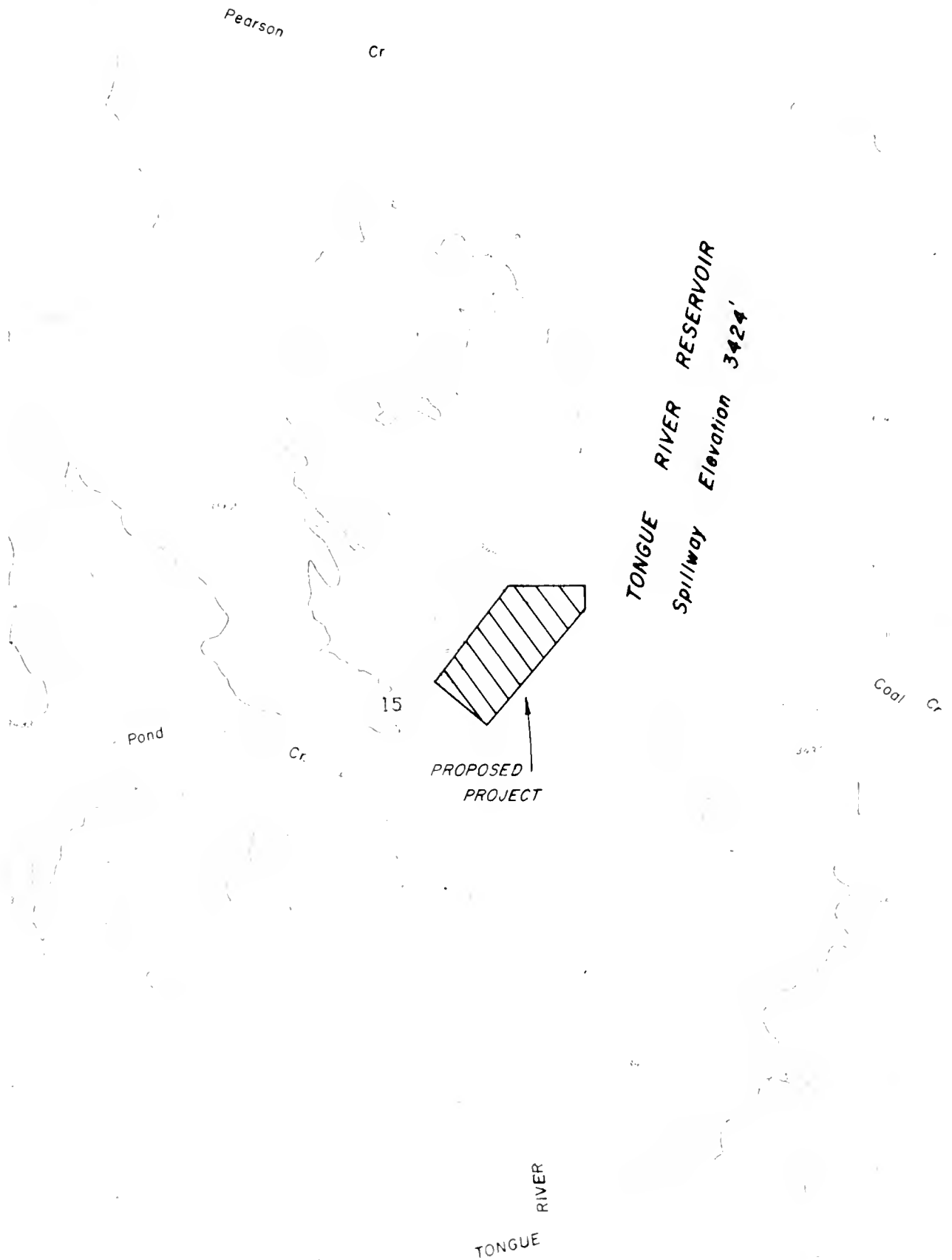


Fig. 2

This project has the added advantages of available background information from several concurrent studies in the area. In addition to the limnology project already mentioned, several fish population studies have been underway since 1973 (Elser, 1974, 1975, 1976; unpublished progress report). These studies include growth rates and standing crops of northern pike, black and white crappie, walleye, and sauger. An intensive creel survey was initiated on the reservoir in 1975. The DFG has been conducting furbearer surveys on drainages of southeastern Montana (1976, unpublished report). The Tongue River is included but definitive data is available for beavers only. With the baseline data already acquired and with information from continuing studies, the U.S. Fish and Wildlife Service is in a position to provide a detailed evaluation of the contribution of this marsh to fish and wildlife values of the Tongue River Reservoir. Such evaluation is essential prior to making recommendations and formulating methodology for attempting similar projects in the Northern Great Plains region. This is a cooperative project between Decker Coal Company, U.S. Fish and Wildlife Service (Cooperative Fishery Research Unit), and the Montana Fish and Game Department.

PROJECT DESCRIPTION

The legal description of the proposed marsh outlined in Figures 1 and 2 is as follows:

Commencing at a point on the East line of Section 15, T. 9S., R. 40E., Big Horn County Montana; 1119.0 feet south of the Northeast corner of said section 15, said point being the true point of beginning; thence S 01-35-38E, 201.00 feet; thence S 40-04-21 W 2115.70; thence N 50-02-28 W, 957.59 feet; thence N 39-54-14 E, 1568.20 feet; thence N 89-53-55 E, 1084.40 feet to the true point of beginning containing 43.00 acres more or less.

The site for the proposed spawning marsh lies adjacent to the Tongue River and in a high water year, is completely flooded following spring runoff. The dike to be constructed will be of sufficient height to prevent the marsh from flooding during high reservoir stages.

A rough site development plan including construction conditions and specifications is provided as an attachment to this statement.

PROJECT OPERATION

If construction of the marsh is completed in 1977, the marsh basin, waterfowl nesting islands, and dike will be seeded with selected grasses. Any areas of the dike subject to severe and/or persistent wind action will be riprapped. Because of normal delays in obtaining necessary permits, time will not allow for the marsh to be completed and filled prior to the 1977 northern pike spawning season. Therefore, the seeded grasses will be undisturbed throughout the 1977 growing season, except for some foraging by rodents and birds. This lack of major disturbance will serve to stabilize the dike and waterfowl nesting islands in addition to providing the required vegetation for pike spawning in 1978. In March 1978, filling of the marsh will begin. In April, trapping for adult pike will begin in the reservoir. The correct number and sex ratio of pike will be transported to the marsh, planted, and allowed to spawn. Following spawning, the adult pike should

return to the reservoir via the overflow outlet on the marsh. The eggs deposited by the adult pike will hatch in about ten days. Within 1-3 months most young pike will have migrated to the reservoir via the outlet. If necessary, the marsh can be drawn down in late June, and the remaining pike removed by seining. The remaining water stored in the marsh will then be released, and the marsh will remain dry to allow the terrestrial vegetation to reestablish. If successful, the procedures just described, or modifications thereof, will be repeated each year for an indefinite period of time. For those years the DNRC does not request release of the marsh water, the marsh may remain full throughout fall and winter. This will allow appropriate aquatic plants to become established. In summer, the annual water regime of the marsh will depend on required summer releases from the marsh and on the success of northern pike spawning or inundated terrestrial vegetation. When mining is completed, groundwater from the mine area and water from the Tongue River will be available for marsh operation.

If the High Tongue Dam is constructed, the marsh will be relocated if possible. If not, the area will be inundated and the pike spawning operation terminated.

ENVIRONMENTAL IMPACT ASSESSMENT OF PROPOSED ACTION

HYDROLOGY

Reservoir Management

The easement would involve about 43 acres (17.40 hectares) of DNRC land of which approximately 25 acres (10.12 hectares) will be surface area of the marsh. The lowest elevation in the permanent pool area in section 15 is about 3,415 feet (1,041 meters). The average water depth in that area will be 4.5 feet (1.37 meters). The storage of the marsh will amount to about 113 acre-feet (139,000 cubic meters). Because the spawning area would contain water which would be available for use in the reservoir, the only loss of storage results from the amount of water displaced by the dike.

Due to certain design problems with the outlet tunnel of the reservoir, it has been suggested that the maximum discharge through the tunnel be about 1,200 cubic feet per second (3.40 cubic meters per second). The spillway is in poor condition, and its use should be avoided if at all possible. Because of the spillway's condition, loss of reservoir storage, especially at high reservoir stage, is undesirable. The likelihood of using the spillway decreases as available storage increases. A summary of active storage is included in Table 1, and a graph of storage vs. year is shown in Figure 3.

An old railroad bed forms the eastern boundary of the proposed project area. It is proposed that the bed will be raised above the high water mark. The proposal states that the high water mark is the 50-year flood level, but the DNRC commonly uses the 100-year flood which puts the high water mark at an elevation of 3,428 feet (1,045 meters). Therefore, the dike should be raised to this elevation.

Historical Inflow

Inflows to the Tongue River Project are measured by the gage, "Tongue River at State Line" (Sta. 06306300). This gaging station was installed in 1960. The reservoir outflows are measured at the gage "Tongue River at Tongue River Dam" (Sta. 06307500) which has been in operation since 1969. Reservoir contents have also been monitored at the gage "Tongue River Reservoir End-of-Month Contents" (Sta. 06307000). The largest flood flow recorded at any site was 7,480 cubic feet per second (cfs) in 1967. The smallest flow recorded below the dam was no flow when the gates were closed in 1969.

Required Releases

The decreed rights downstream of the Tongue River Project total 414.90 cfs (1.17 cubic meters per second). In addition to 30 cfs (0.08 cubic meters per second) decreed rights, 60 cfs (0.17 cubic meters per second) were assumed for the Northern Cheyenne Indian Reservation as an allowance for water supply for their reserved lands. This total of 475 cfs of prior rights is active during the irrigation season, May through September.

In the non-irrigation months, releases are required for prevention of ice jams, stock watering, and fish and municipal uses. These releases have historically been the same as the inflows into the reservoir up to 10,000 acre-feet (12.33 cubic hectares) per month (equivalent to 167 cfs (0.47 cubic meters per second) continuously).

TABLE 1

TONGUE RIVER RESERVOIR: SUMMARY OF ACTIVE STORAGE
(in A.F.)

Year	Minimum	Average	Maximum
1956	10,010	28,610	46,040
1957	1,010	24,130	48,130
1958	10,010	24,350	38,540
1959	15,590	37,210	73,530
1960	140	17,790	31,010
1961	10,090	37,170	59,990
1962	26,250	43,790	54,020
1963	31,870	37,330	43,450
1964	24,480	34,760	67,440
1965	22,600	38,860	63,300
1966	10,240	34,710	60,420
1967	22,460	37,620	64,290
1968	27,060	41,790	61,700
1969	20,500	41,420	63,300
1970	25,120	34,560	55,500
1971	23,350	35,120	52,320
1972	25,810	40,570	57,310
1973	26,890	39,200	61,700
1974	22,600	38,450	60,100

Figure 3 a

GRAPH OF STORAGE VS. YEAR
FOR THE TONGUE RIVER RESERVOIR PROJECT

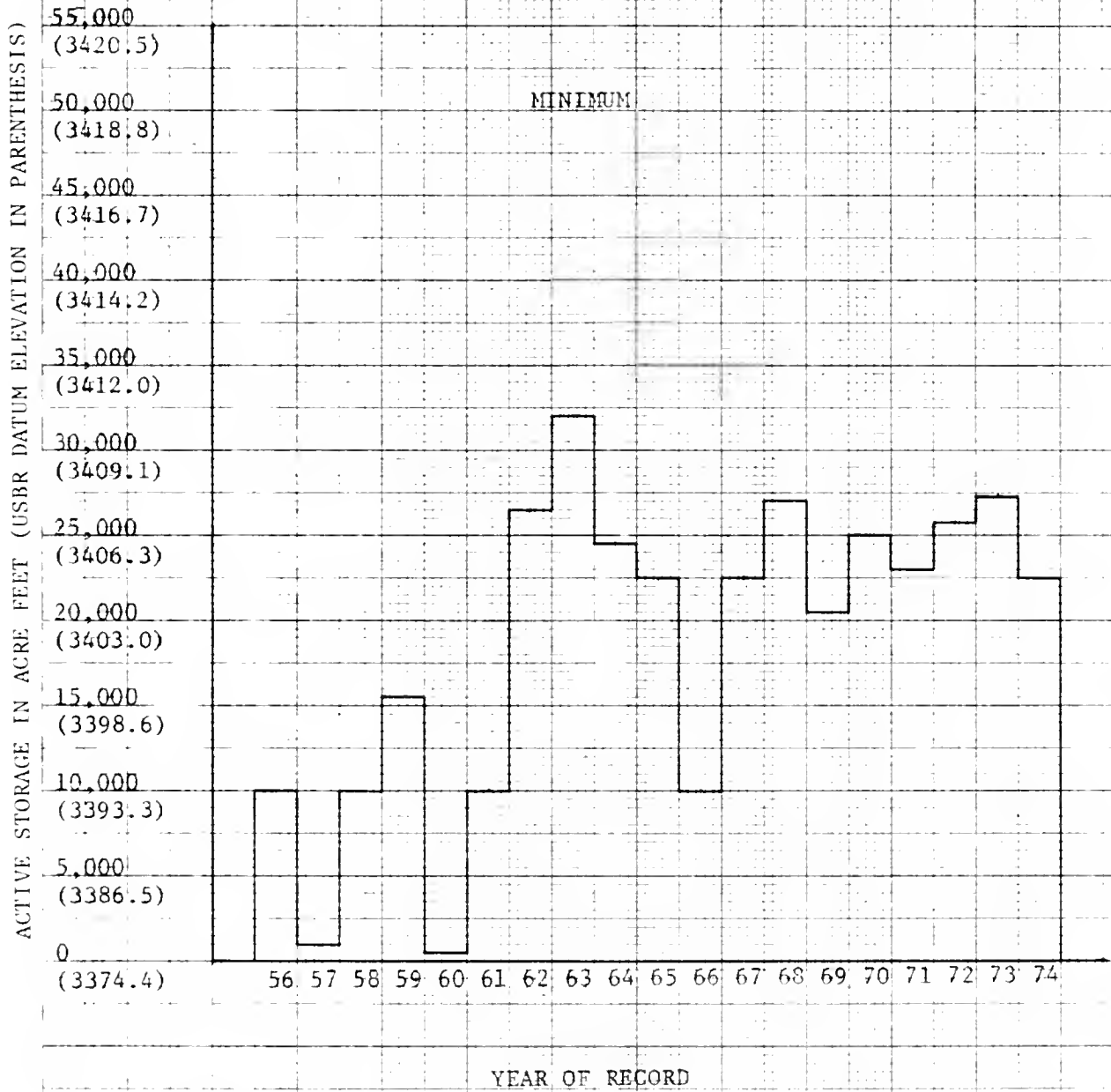


Figure 3 b

GRAPH OF STORAGE VS. YEAR
FOR THE TONGUE RIVER RESERVOIR PROJECT

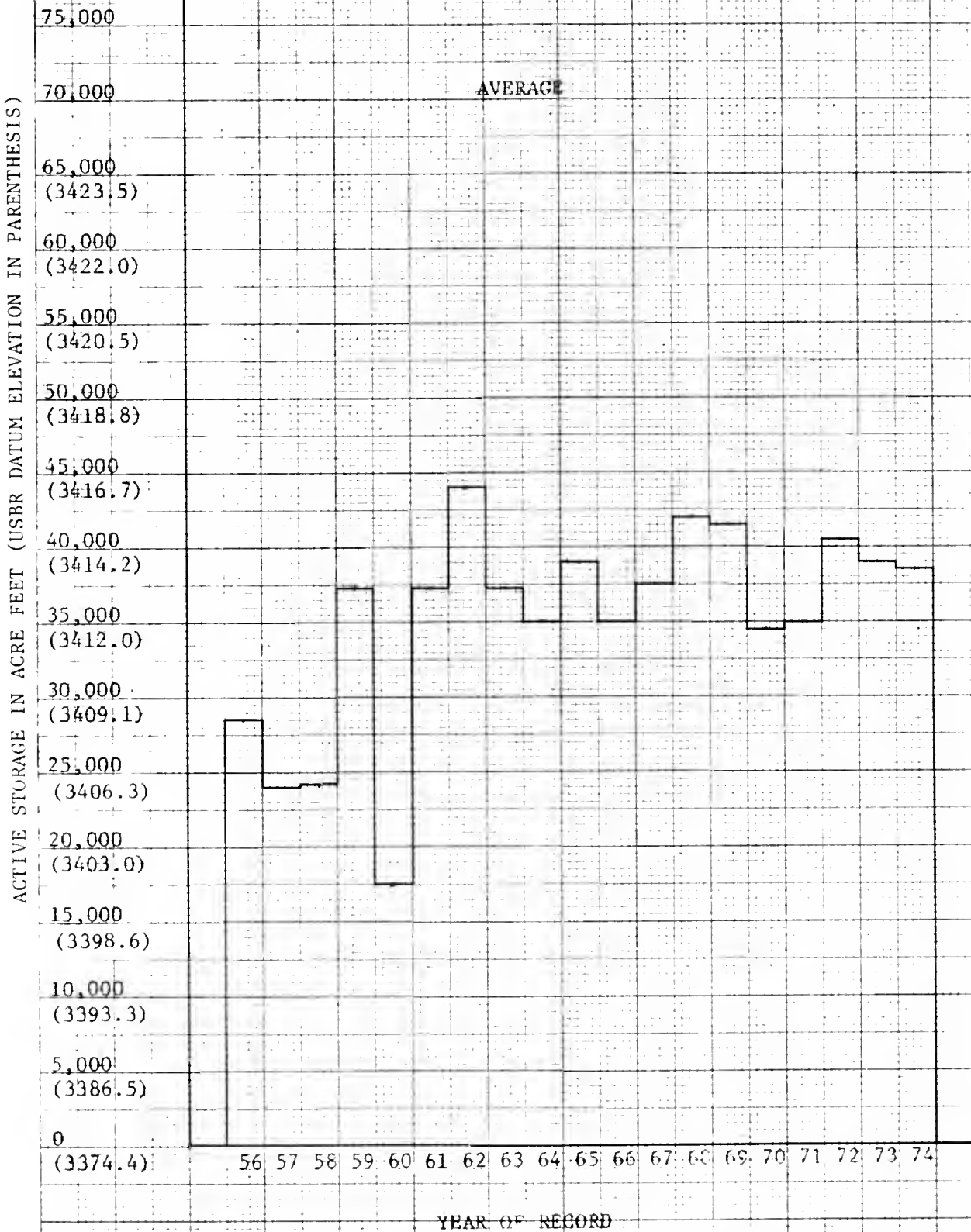
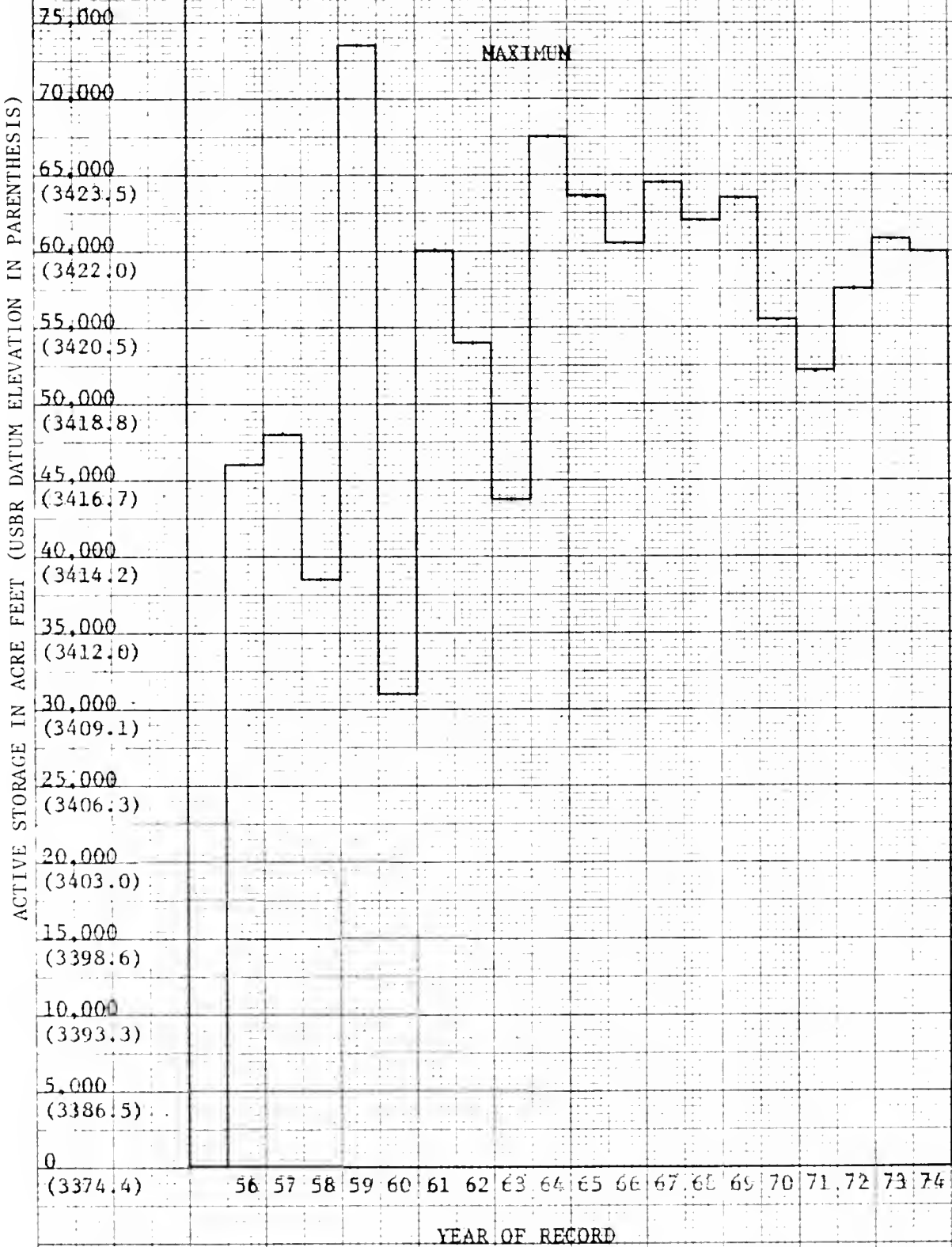


Figure 3 c

GRAPH OF STORAGE VS. YEAR
FOR THE TONGUE RIVER RESERVOIR PROJECT



Erosion and Sedimentation

Construction is planned as soon as the substrate thaws in the area of the marsh. Construction should be completed and the dike seeded, and/or riprapped before the reservoir level reaches the dike. Highest reservoir stage usually occurs in June. No major erosion or sedimentation problems are anticipated in conjunction with construction. If the reservoir fills earlier than usual, some minor sedimentation may occur.

Water flowing from the marsh over the outflow will fall onto a "pad" of scoria to be installed below the dike. The pad is necessary to reduce turbidity in a fish trap which will be located on the outflow gate. The water will then flow through a protected canal 50-60 feet (15-18 meters) to the Tongue River channel. Some minor erosion and sedimentation will occur immediately after the marsh begins spilling.

Soils

Soil samples were taken at two locations, which would be covered by the marsh, with subsamples taken at reported intervals down to 48 inches (121.92 millimeters). Analysis (Table 2) indicates suitable soils with no apparent problems.

Culvert Replacement, Sizing and Design

Details of the outlet structure included in the site development plan submitted to DNRC, are included with this review. The outlet structure will be of the overflow type with all water passing through a Wolf-type fish trap to avoid impacts to fish. The trap is relatively simple and designed so that the water falls through an inclined screen while the fish slide down the incline and into a holding tank. The purpose of the trap is to count northern pike fry and fingerlings leaving the marsh.

WATER QUALITY

Water to fill and maintain the spawning marsh will be supplied via a conduit from the settling pond located on Decker Coal Company property. The water quality of the settling pond effluent (mine discharge) has been monitored by Cooperative Fishery Research Unit personnel since June 1975. Significant differences exist between measured values of several parameters in the inflowing reservoir waters and mine discharge waters. These include sodium, total alkalinity, sulfate, specific conductance, turbidity, ammonia, nitrate, total nitrogen, and sodium absorption ratio (SAR). While each of these parameters are considerably higher in the mine discharge waters, they do not measurably affect the Tongue River below the present discharge point. The discharge point will be moved about 400 yards (365.76 meters) downstream as mine effluent passes through the spawning marsh and thence into the river. The marsh will have little effect on levels of sodium, sulfate, specific con-

TABLE 2

Report of Laboratory Soil Analysis of Proposed Marsh*

Sample Number	Sample Interval	pH		Soluble Salts ECx10 ⁻³	Na meq/l	Ca meq/l	Mg meq/l	SAR	Texture				B	N	P	K	Satura- tion %	Organic Matter %	
		Paste	1.5 Diln.						very fine sand	% sand	% silt	% clay							class
Marsh 1	0-6	7.7	8.1	1.55	2.78	8.30	6.32	1.0		1.2	49.3	49.5	silty clay	0.48	4.7	12.3	290.1	80.8	3.3
	6-12	7.9	8.3	1.03	2.51	6.77	2.84	1.1		10.2	52.8	37.0	silty clay loam	0.35	5.1	3.4	297.5	57.9	1.4
Marsh 2	12-24	8.1	8.4	1.68	7.07	6.19	4.24	3.1		14.8	50.3	34.9	silty clay loam	0.33	1.5	3.2	282.5	60.7	1.1
	24-36	8.2	8.6	1.78	13.57	4.10	2.28	7.6		26.8	46.3	26.9	loam	0.35	1.6	2.8	145.0	51.6	0.6
	36-48	8.2	8.6	2.03	18.35	2.60	6.55	8.6		7.2	52.6	40.2	silty clay	0.56	0.4	4.8	191.7	63.2	1.8
	0-6	7.2	8.1	3.23	21.50	14.58	8.90	6.3		4.9	42.4	52.7	silty clay	0.47	2.5	18.0	218.6	78.8	2.5
Marsh 2	6-12	7.3	8.1	3.80	25.70	19.70	14.08	6.3		5.3	52.7	42.0	silty clay	0.44	1.1	10.2	213.4	87.0	1.6
	12-24	7.4	8.2	3.63	20.45	15.63	11.54	5.5		8.2	52.6	39.2	silty clay loam	0.68	1.3	5.8	177.2	84.8	1.6
	24-36	7.7	8.8	2.78	22.43	4.17	2.54	12.2		16.1	54.6	29.3	silty clay loam	1.19	2.4	1.7	174.7	77.8	0.6
	36-48	7.8	8.7	1.95	18.70	2.32	1.47	13.6		29.1	49.8	21.1	loam	0.86	0.8	2.7	153.5	70.2	0.6

*Analysis conducted March 1977 by Peter Kiewit Sons' Co. Mining District

Diln = Dilution

EC = Electrical conductivity

meq = milliequivalent

Na = Sodium

Ca = Calcium

Mg = Magnesium

SAR = Sodium Adsorption Ratio

B = Boron

N = Nitrogen

P = Phosphorus

K = Potassium

ductance, or SAR values of the mine effluent. However, it is expected that inorganic nutrients (i.e., ammonia, nitrate, and nitrite) will be utilized by phytoplankton and macrophytes in the marsh. The pond will therefore serve as a nutrient trap even though the present rate of reservoir enrichment from the mine is below detectable limits. The pond will also serve as a secondary settling pond to further reduce turbidity of the mine discharge waters.

For the most part, the fish in the marsh will be very young. Therefore, the quantity of fish wastes will be minimal and settle out thus adding to the organic nutrients which the vegetation will utilize. In summary, the quality of water leaving the proposed marsh will be somewhat improved over the present mine discharge water.

FLOODPLAIN

The proposed project is in the Tongue River floodplain near the upper end of the Tongue River reservoir. Because of its proximity to the reservoir, the Tongue River in this area is a very slow moving, meandering stream with a broad, flat floodplain. The only existing encroachment on the floodplain in the immediate vicinity is the old railroad bed. The proposed project encroachment of the floodplain is described in the section entitled "Reservoir Management."

AIR QUALITY

Primary Pollutants

The present air quality of the proposed project area is considered good and typical of rural Montana rangeland areas. The area does experience nocturnal inversions, largely during the winter months. They are generally not persistent and dissipate during the mornings. At present, suspended particulates constitute the primary air pollutant drought periods of the year and, if high winds occur, the particulate loadings can be substantial.

Data from the Carlat Ranch site for the period fall 1972 to spring 1974 (installed by the Montana Department of Health and Environmental Sciences) indicate an annual geometric mean concentration of about 12 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) for suspended particulates and a 24-hour maximum concentration of $44 \mu\text{g}/\text{m}^3$. Similar results were reported from the Young's Creek site for the period 1973 to 1974 (installed by Montana State University) with an annual geometric mean of $13 \mu\text{g}/\text{m}^3$ and a 24-hour maximum of $56 \mu\text{g}/\text{m}^3$. Data from the Decker-Morton station (installed by the Montana Department of Health and Environmental Sciences) for the period October 1974 to February 1975 indicate a geometric mean of about $40 \mu\text{g}/\text{m}^3$ and a 24-hour maximum of $160 \mu\text{g}/\text{m}^3$. This limited data indicates that the present air quality of the proposed project area is good.

Developing the proposed project will bring minor and temporary changes to the air quality of the area. The primary pollutants which may be expected as a result of the activity will be:

1. Fugitive dust from topsoil and fill, removal, and replacement operations;
2. hydrocarbon and particulate emissions from machinery involved in the construction process, and

3. particulate material from stored topsoil piles and the embankment fill, prior to reclamation.

The pollutants resulting from the construction activity are low level in nature. The largest share of particulate matter is large and will settle out rapidly; the smaller material will remain for a greater duration. The increase in dust levels attributable to the construction activity will be localized and will settle out and disperse rapidly.

In the years in which water remains in the proposed marsh area year-round, there may be reduction of dust levels. Currently, dust is blown from the mud flats that now make up the proposed project area when the water surface elevation of the reservoir is lowered.

Abatement Procedures

Abatement procedures for controlling fugitive dust and particulate matter within the construction area will lower dust levels. Surfacing the access road will similarly reduce dust and particulate levels. Compaction followed by rapid reclamation of the embankment fills will limit dust levels from these areas. However, until the reclamation is complete, increased dust levels may occur.

FISHERIES

The major effect of the proposed marsh is expected to be an improvement in the northern pike fishery in the Tongue River Reservoir. Northern pike cannot presently spawn in the reservoir due to lack of suitable spawning conditions. Northern pike feed on other fish, such as yellow perch which tend to over populate and infringe on other fish habitat. The successful annual production of pike fingerlings from the marsh will increase population numbers and improve the sport fishery.

The site of the proposed marsh is flooded only during high reservoir storage usually in June. It does not flood on an annual basis. When flooding does occur, it is likely that certain nongame species such as carp and goldfish utilize the area for spawning. After dike construction, the marsh area will no longer be available as spawning sites for such nongame species. Because of the mud/silt substrate of the spawning marsh site and the early spring spawning of major sport fishes, diking the marsh will not affect reproduction of these species (e.g., walleye, crappie, yellow perch, black bass).

During high water, the flooded marsh site may also be used as a feeding area for some game fishes. Because of the high turbidity of water in this area caused by the flooding of exposed mud flats, it is doubtful that the proposed marsh site is a major feeding ground for fish.

Based on recent fishery studies conducted on the river and reservoir, there is no evidence of overcrowding of the resident fish species. Therefore, the small amount of space available in the proposed marsh area during high reservoir stage can be easily compensated for by alternative areas after marsh construction. Any adverse affects of the marsh on resident fish populations could not be measured by any techniques presently available.

WILDLIFE

The area presently consists of mud flats adjacent to the Tongue River with various species of weeds invading the area by fall. With the minor exceptions discussed below, the area has extremely limited value to resident wildlife.

Mule Deer

A resident mule deer population does not occur near the proposed marsh although an occasional deer has been observed walking across the marsh site. Because of total lack of cover or forage plants, filling the marsh should have no measurable effect on resident mule deer.

White-tailed Deer

None have been observed in the area, probably due to lack of cover and/or suitable forage.

Pronghorn Antelope

The marsh site does not constitute suitable antelope habitat. None have been observed in or near the marsh area.

Great Blue Heron/Double Crested Cormorant

A rookery for these birds has been located in the upper end of the reservoir for many years. A substantial number of birds nest here, and it is the only known major rookery in the Tongue River drainage. Estimates of current use range from 60-76 herons and 50-60 cormorants.

The marsh is located about 1/4 mile (402 meters) from the rookery. Past exposure of the birds to nearby mining activities suggests that marsh construction and operation will have no significant effect. No nests presently occur in the few dead cottonwood trees standing within the proposed marsh area.

The impact of these and other fish-eating birds on the fish production in the marsh is another matter. There is little doubt that the presence of young pike in the relatively shallow water with little protection will increase feeding opportunities for the birds.

Canada Geese

The proximity of the proposed marsh to State Highway 314 has discouraged use of the mud flats in the marsh site for feeding by geese. However, ten waterfowl nesting islands are to be constructed in the marsh for use by geese and ducks. This addition of a more stable and secure nesting habitat should result in an added 40-50 goslings in the area above the present production.

Upland Game Birds

Pheasants, Hungarian partridge and sharp-tailed grouse are known to occur within the active mining area. Actual numbers have not been determined. It is possible that the marsh site when drained or at low water level, could

produce additional excellent winter cover in the anticipated cattail-bulrush edge. When the marsh is flooded, birds will have to seek alternative feeding areas when use of feeding areas is at a seasonal high.

Ducks

While various species of ducks occur in the area few have been observed on the marsh site during high water. The marsh site is not believed to be an important feeding or resting area for ducks. It is expected that ducks will utilize the islands, to be constructed in the marsh for nesting, after the geese complete their nesting activities. The development of marsh vegetation, now virtually nonexistent because of the short seasonal nature of the marsh, should enhance the area for waterfowl.

Osprey

There is one known osprey nest located near the heron/cormorant rookery. The nest involves one nesting pair of birds and is unique to southeastern Montana. Because of the distance from the marsh to the nesting tree, there should be no disturbance. The marsh will provide additional feeding opportunities for these birds.

Turkey Vulture

Turkey vultures are known to use the upper end of the reservoir for feeding and roosting activities. No significant impact on these birds will result from the marsh construction.

Golden Eagle

Golden eagles in flight are frequently sighted near the area and are considered year-round residents. They do not nest near the marsh, and their use is confined to the sagebrush steppe habitat rather than the reservoir itself. Since the present mining activity has not noticeably disrupted their activities, it is highly unlikely that the marsh will have any impact.

Bald Eagle

In the winter, bald eagles are commonly sighted over the rookery engaged in feeding activities. They do not remain in the area during the spring when construction and operation of the marsh would be underway. Therefore, marsh construction cannot be expected to disrupt bald eagle use of the area.

White Pelican

A small transient flock of white pelicans numbering 10-20 has been observed using the upper end of the reservoir for feeding. They remain at the reservoir from April through about June. There is no evidence of nesting activities by these birds, and the flock is probably composed of immatures and unsuccessful breeders. Because part of their feeding behavior involves a group of pelicans herding the young fish into shallow water, the marsh could provide potentially increased feeding opportunities for the pelicans.

Furbearers

Beaver, muskrat, and some mink are known to use the river and shoreline near the proposed marsh. A survey conducted by the Cooperative Fishery Research Unit in the fall of 1976 has plotted location of trails, caches, track-sets, scat, old and new dens, and sightings of the animals. One of the two areas most heavily used by beavers occurs directly across the river (east) from the proposed marsh. The marsh will certainly not adversely affect furbearer activities and may actually concentrate more animals in the immediate vicinity. Additional surveys are planned in succeeding falls to measure activity levels of the furbearers.

SOCIAL/ECONOMIC

Construction of the proposed marsh will not require additional personnel. The construction work will be subcontracted to Peter Kiewit Sons, the parent company of Decker Coal Company. Men and equipment are already available near the marsh site, and no new hirings will be necessary. The construction will be short-term in nature requiring only 2-3 weeks for completion.

AESTHETICS

To most observers, the sight of the 25-acre (10.12 hectares) spawning marsh would be preferable to the present mud flats. Highway users passing the marsh will be able to observe nesting geese and ducks and the offspring produced, an opportunity not now available. There should also be certain intangible benefits among sportsmen who will know the marsh is providing fish and waterfowl to recreational users of the river and reservoir. There may be adverse and disagreeable impacts on some who observe construction activities in the marsh but these will be short-lived and outweighed by long-term benefits.

HUNTING AND RECREATION

The marsh will attract nesting and feeding waterfowl which may be enjoyed by wildlife observers and/or photographers. Fish-eating birds will also be attracted to the area and available for easy observation from Highway 314. Hunting and fishing would not be allowed within the boundaries of the marsh, but such activities in the surrounding area would benefit as a result of the proposed project. Northern pike, Canadian geese, and certain species of ducks would be added to resident populations and increased hunting and fishing opportunities should result.

ARCHEOLOGICAL AND HISTORICAL SITES

The base for the dike enclosing the spawning marsh will be formed by a portion of an old railroad bed which was originally intended to link Sheridan, Wyoming with Miles City, Montana. This bed can be observed in numerous other locations, and loss of this short section is of minor consequence. As far as is known, there are no archeological sites in the immediate location of the marsh. An impact could occur if unknown and important sites exist.

CONCLUSIONS

If the easement were allowed, the construction involved to create the proposed project would bring about further change in an area which is experiencing coal development activity. DNRC acknowledges that the construction of the proposed project would lead to a certain level of impact. However, DNRC does not believe that the proposed construction falls under the definition of the term "major" as used in the MEPA. All negative impacts would be temporary (generally no longer than two years) while the positive impacts would be for the duration of the project (20-30 year mining period).

RECOMMENDATIONS

Although the proposed project is not major and will not create significant impacts, DNRC feels that several conditions must be a part of the conveyance and release of any easement. This must be the case if all negative impacts are to be minimized and if the orderly development of the proposed project is to be realized. Among the conditions which must be provided and contained in the easement are:

1. All applicable federal, state and local laws and regulations pertaining to the construction, maintenance, and operation of the dike, islands, inlet and outlet structures, and access road shall be complied with.
2. Once the exact location of the dike, islands, and inlet and outlet structure have been approved by DNRC, they cannot be removed and/or relocated without approval by DNRC.
3. A detailed site development plan must be submitted to and approved by DNRC before any construction begins. This includes engineering plans and specifications of all structures and of the channel from the outlet structure to the river channel.
4. Final embankments on the reservoir side of the fill shall not exceed a slope of 4:1. All other slopes shall not exceed a gradient of 2:1. In either instance, slope gradients shall be such that the rate of sedimentation from the fill area will not be greater than that which occurred naturally prior to disturbance. At a minimum, any portions of the fill which extend below 3,429 feet (1,045 meters) on the reservoir side (reservoir spillway elevation plus five feet) shall be protected with suitable riprap material approved by DNRC.
5. No portion of the fill may be placed nor grading or earth moving equipment allowed to operate within areas inundated by standing or running water. Such activity must be deferred until water levels are below the toe-of-fill elevation.
6. The fill shall be graded so that there is no concentration of runoff on either slope which could result in erosion of the fill slope.
7. The inlet and outlet structure must have control gates so that the spawning and nesting area can be completely drained at any time after July 1 of any given year, if the Department so desires. The structure must be constructed so that there is no increase in erosion.
8. If the proposed project is no longer maintained by the Department of Fish and Game as a northern pike spawning area, the area must be restored back to its original state if so desired by the Department.

DNRC has determined that an Environmental Impact Statement is not necessary for the proposed project since there are beneficial impacts to fish and wildlife and minimal negative impacts.

REFERENCES

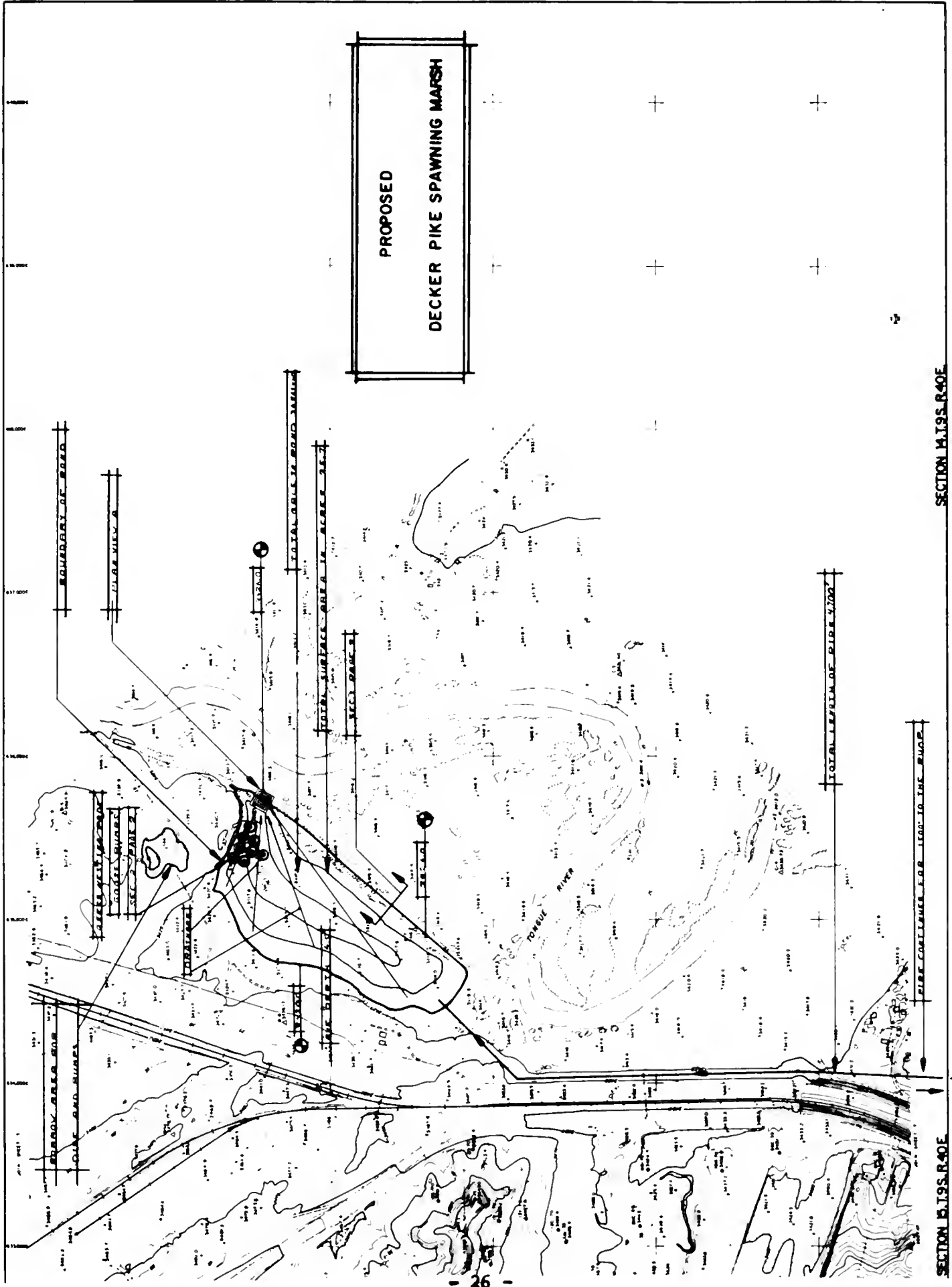
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A P P E N D I X



PROPOSED
DECKER PIKE SPAWNING MARSH

SECTION 14.195.R.40E

SECTION 15.195.R.40E

